

Application No.: 10/601,597Docket No.: 2336-181REMARKS

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested. Entry of this Amendment under Rule 116 is merited as it raises no new issues and requires no further search.

Claims 19-21 are pending in the application. Claims 5, 18 and 22-23 have been cancelled without prejudice or disclaimer. Claims 19-21 have been rewritten in independent form including all limitations of base claim 5. No new issue has been raised.

The pending claims are also believed to have been placed in better condition for appeal.

The Examiner's repeated rejection of claim 5 as being obvious under 35 U.S.C. 103(a) over *Miura, Keizo* and *Ishizuka* is traversed for the reasons advanced in the last Amendment, at page 4 the last full paragraph through page 5 the last full paragraph, i.e., *Ishizuka* is non-analogous art. Applicants' arguments advanced in the last Amendment, as indicated above, are incorporated herein by reference.

Notwithstanding the above, and solely for the purpose of expediting prosecution, amendments have nevertheless been made to avoid the Examiner's rejections of claims 5, 18, 22-23. Applicants respectfully submit that the remaining claims, i.e., claims 19-21, are patentable over the applied art of record for the following reasons.

1. The 35 U.S.C. 103(a) rejection of claims 19 and 21 over *Olson* is traversed, because *Olson* is non-analogous art.

"In order to rely on a reference as a basis for rejection of an applicant's invention [under 35 U.S.C. 103(a)], the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*,

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796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); and *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). See *MPEP*, section 2141.01(a).

At the end of page 5 of the final Office Action, the Examiner alleges that *Olson* is from the same field of Applicants' endeavor. Applicants respectfully disagree. The present invention relates to vertical GaN (i.e., inorganic) **light emitting diodes**, whereas *Olson* relates to the field of **heat sinks** and adhesive tapes for attaching a heat sink to an electronic device that needs thermal dissipation. See page 1, lines 5-10 of the instant specification, as well as Title and column 1, lines 10-20 of *Olson*. A person of ordinary skill in the art would at once recognize that the two technologies are completely different, and cannot be regarded as belonging to the same field of endeavor. This is also evident from the absolutely unrelated classifications of the present invention (257/13, see the Examiner's Restriction Requirement dated September 2, 2004) and *Olson* (428/209, see the front page of *Olson*, item (52)). Therefore, it cannot be said that *Olson* is from the field of Applicants' endeavor.

Applicants further submit that *Olson* is not reasonably pertinent to the particular problem with which the inventor was concerned. The particular problems with which the Applicants were concerned have been specified in the specification, pages 4-5, i.e., the low current efficiency, weak electrostatic discharge effect, insufficient heat dissipating capacity, and unsatisfactory luminance of conventional GaN light emitting diodes. *Olson* deals with an adherent film for attaching a heat sink to an electronic device that needs thermal dissipation. The *Olson* adherent film should be both highly thermally conductive and capable of ensuring electrical isolation between the heat sink and the electronic device. See, e.g., column 1, lines 14-15, column 2, lines 443-45, column 3, lines 30-

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31 of *Olson*. A person of ordinary skill in the art would at once recognize that the matter with which *Olson* deals (i.e., thermally conductive, electrically isolative adhesive tapes), logically would not have commended itself to the Applicants' attention in considering the completely different problems of light emitting diodes (i.e., low current efficiency, weak electrostatic discharge effect, insufficient heat dissipating capacity, and unsatisfactory luminance). Therefore, it cannot be said that *Olson* is reasonably pertinent to the present invention.

For the reasons advanced above, *Olson* is clearly non-analogous art that cannot be applied against the claims of the instant application.

2. The 35 U.S.C. 103(a) rejection of claims 19 and 21 over *Olson* is further traversed, because *Olson* is not combinable with the other applied references; the Examiner's proposed combination with *Olson* would render the reference being modified, i.e., *Miura/Keizo* unsatisfactory for its intended purpose.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings... *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See also *MPEP*, section 2143.

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). See also *MPEP*, section 2143.01.

It should be noted that the adhesive material that the Examiner proposes to import from *Olson* into *Miura* is electrically insulative. Note, especially the *Olson* explicit teaching that the adhesive film has useful dielectric strength to prevent trace to trace shorting. "Dielectric strength"

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as well known in the art is the property of electrically insulating materials. See, e.g., column 1, lines 14-15, column 2, lines 443-45, column 3, lines 30-31, 39-40, 43-44, 47, and especially lines 49-50 of *Olson*. In contrast, the adhesive material used in *Miura/Keizo* must be electrically conductive. See, e.g., the Examiner's discussion at the paragraph bridging pages 2-3 of the Final Office Action. A person of ordinary skill in the art would at once recognize that modifying the electrically conductive adhesive of *Miura/Keizo* device with the electrically insulative adhesive tape of *Olson* would impair the required electrical connection between the substrate/lower electrode (e.g., *Miura* at 1/7) and the lower clad layer (e.g., *Miura* at 3). In the Examiner's proposed combined device of *Miura, Keizo* and *Olson*, the lower electrode (e.g., *Miura* at 7) would be electrically isolated from the lower clad layer (e.g., *Miura* at 3) and, hence, the active layer (e.g., *Miura* at 4) could not be activated. The Examiner's proposed *Miura/Keizo/Olson* LED would be inoperative or unsatisfactory for its intended purpose.

Accordingly, Applicants respectfully submit that no person of ordinary skill in the art would have made the Examiner proposed combination.

3. The 35 U.S.C. 103(a) rejection of claim 21 over *Olson* is further traversed, because the Examiner's proposed combined device would lack the claimed Au-Ag alloy.

To establish a prima facie case of obviousness, three basic criteria must be met... Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See also *MPEP*, section 2143.

The Examiner's argument that *Olson* teaches the claimed limitation at column 5, lines 30-32 is noted. Applicants respectfully disagree, because *Olson* does not teach or suggest that Au and Ag mentioned in column 5, lines 30-32 are in the claimed alloy form. The elements are metallic fillers dispersed in an adhesive layer. See column 5, line 20 of *Olson*. Applicants respectfully

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submit that the *Olson* structure comprising an adhesive and Au and Ag particles dispersed therein is not an Au-Ag alloy, and is not readable on the claimed limitation.

Accordingly, Applicants respectfully submit that the applied references singly or in combination fail to disclose, teach or suggest the claim limitation at issue.

4. The 35 U.S.C. 103(a) rejection of claim 20 over *Cho et al.* is traversed, because *Cho et al.* is not combinable with the other applied references in the manner the Examiner proposes to arrive at a light emitting diode comprising, among other things, a conductive adhesive layer made of In.

The Examiner's argument that *Cho et al.* teach the claimed limitation at column 7, lines 5-8 is noted. Applicants respectfully disagree, because *Cho et al.* explicitly teach at column 7, line 3 that the element that is made by In is the bottom electrode 11. As can be seen in FIG. 1 of *Cho et al.* and FIG. 1 of *Miura*, the bottom electrode 11 of *Cho et al.* corresponds to the bottom electrode 7, rather than to an adhesive between layers 1 and 3, of *Miura*. Thus, a person of ordinary skill in the art learning of the teaching of *Cho et al.* would not have been motivated to modify the *Miura/Keizo* combined device to replace the *Keizo* adhesive layer between the substrate and the reflective layer with an unrelated element of *Cho et al.*, i.e., the bottom electrode 11. The person of ordinary skill in the art would have replaced, if at all, the bottom electrode 7 of *Miura* with the corresponding element of *Cho et al.*, i.e., the bottom electrode 11; however, such a hypothetical device would lack the claimed conductive adhesive layer made of In.

Accordingly, Applicants respectfully submit that the applied references are not combinable in the manner the Examiner proposes to arrive at the claimed invention.

Withdrawal of the 35 U.S.C. 103(a) rejections of claims 19-21 and allowance of the pending claims in view of the above are believed appropriate and therefore respectfully requested.

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The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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